

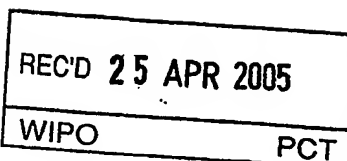
PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference HUNTEB01.032	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US04/19860	International filing date (day/month/year) 18 June 2004 (18.06.2004)	Priority date (day/month/year) 20 June 2003 (20.06.2003)	
International Patent Classification (IPC) or national classification and IPC IPC(7): G06F 17/60; G06F 19/00 and US Cl.: 705/36; 700/97			
Applicant STRATEGIC CAPITAL NETWORK LLC			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>2</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 19 January 2005 (19.01.2005)		Date of completion of this report 18 March 2005 (18.03.2005)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Zoila Cabrera Telephone No. 571-272-3738	

Form PCT/IPEA/409 (cover sheet)(January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/19860

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-44 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☒ the claims:
- pages 45,46 and 48 as originally filed/furnished
- pages* NONE as amended (together with any statement) under Article 19
- pages* 47 and 49 received by this Authority on 19 January 2005 (19.01.2005)
- pages* NONE received by this Authority on _____
- ☒ the drawings:
- pages 1-13 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/19860**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>2-3, 5, 11-12, 27-32</u>	YES
	Claims <u>1, 4, 6-10, 13-26, 33</u>	NO
Inventive Step (IS)	Claims <u>2-3, 27</u>	YES
	Claims <u>1, 4-5, 6-26, 28-33</u>	NO
Industrial Applicability (IA)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and Explanations (Rule 70.7)
Please See Continuation Sheet

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

V. 2. Citations and Explanations:

Claims 1, 4, 6-10, 13-26, 33 lack novelty under PCT Article 33(2) as being anticipated by **Benhardt (US 2003/0055765 A1)**.

Regarding claims 1, 4, 6-10, 13-16, and 33, Benhardt discloses a method of analyzing a set of assets selected from a plurality, historic returns data for the assets of the plurality being stored (Page 1, [0007]; [0008]). Benhardt further discloses that assets are selected and for each asset a desired minimum return (Page 2 [0029]; Page 4 [0087]). Benhardt discloses using historic returns to determine a probability that at least one of the assets will not provide the desired minimum return indicated for the asset and outputting the probability (Page 2 [0029]-[0033]). Benhardt discloses receiving inputs indicating a set of scenarios for the set of assets, each scenario having values which are used in optimizing the set of assets and which vary stochastically between two extremes and a probability of occurrence for the scenario ([0029]-[0033]; Page 6, [0144]-[0145]); and determining weights of the assets in the set such that the worst-case value of the set of assets is optimized over the set of scenarios (Page 6, [0144]-[0146]). Benhardt discloses scenarios in the set of scenarios correspond to historical returns data for the assets or set of assets which are highly correlated or outliers in the historical returns data (Page 6, [0145], [0144]). Benhardt further discloses receiving input indicating additional constraints to which the set of assets being optimized is subject; and determining the weights subject to the additional constraints (Page 2, [0030], [0023]). Benhardt discloses robust optimization (Page 1, [0017] - [0025]). Benhardt discloses optimizing the weights of the assets is done subject to a constraint that the probability that the set of assets yields a desired minimum return is greater than a user-specified value "a" ([Page 2, [0029] - [0030]). Benhardt discloses a mean return and a covariance matrix (Page 4, [0078] - [0079]; page 2, [0032]). Benhardt discloses that assets may have a negative weight and that the sum of the weights may exceed 1 (Page 2, [0033]). Benhardt discloses that the weight of the assets is done subject to one or more additional constraints and that the additional constraint restricts the sum of the weights of the assets so that the weight of an asset is above a minimum investment threshold (Page 2, [0039] - [0042; [0052] [0061]).

Claims 5, 11, 12, 28-30, 32 lack an inventive step under PCT Article 33(3) as being obvious over **Benhardt (US 2003/0055765 A1)** in view of **Columbus et al (US 2002/0022988 A1)**.

As for claims 5, 11, 12 and 28-30, 32, Benhardt discloses the limitations of claims 1, 4, and 10 above but fails to disclose the limitations of claims 5, 11, 12, and 28-32. However, Columbus teaches that the value of the set of assets is a real option value and that the objective function is adjusted by assigning a premium or a discount to the real value of the assets (Page 1, [0007], lines 14-17). Therefore it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of Benhardt with the method of Columbus because it would provide an improved system for evaluating performance

Supplemental Box

based on returns observed after a particular revision, historical consistency and/or the number of revisions made by the analyst or investing entity (Page 2, [0016]).

Claim 31 lack an inventive step under PCT Article 33(3) as being obvious over Benhardt (US 2003/0055765 A1) and Columbus and further in view of Bergmann et al (US 2002/0143682 A1).

As for claim 31, Benhardt and Columbus discloses the limitations of claim 28 above but fail to disclose taking tax sensitivity of an asset into account. However, Bergmann teaches such limitations, (Abstract). Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to take into account tax sensitivity as taught by Bergmann because it would provide maximum return in portfolio (Bergmann, [0002]).

Claims 2-3 and 27 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest:

Regarding claims 2-3, using the multivariate normal distribution for the returns of the assets to determine the probability that each of the selected assets will provide the desired minimum return; and determining the probability that at least one of the selected assets will not provide the desired minimum return from the probability that each of the selected assets will provide the desired minimum return, in combination with the other elements and features of the claimed invention.

As for claim 27, receiving an input indicating one of a plurality of objective functions for computing the real option values for the assets; and in the step of optimizing the weights of the assets, the optimization is done using the indicated objective function of the plurality, in combination with the other elements and features of the claimed invention.

RESPONSE TO APPLICANT'S ARGUMENTS

Regarding independent claims 1 and 10 Applicant contends, pages 4-5, that Bernhardt does not disclose mean time to fail (MTTF) reliability. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., mean time to fail (MTTF) reliability) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. Regarding the limitations "the probability that during a given period of time one or more of the assets in the set will not provide the minimum return desired for the asset" reads on Page 2, paragraphs 0029-0033. Please note that Bernhardt discloses that "a desired minimum threshold level of daily return is denoted by r " and further discloses that "the algorithm can be adjusted to reflect the return over a longer time period". Bernhardt further discloses identifying when a return falls below threshold, [0030], therefore, there is a determination being taking place of assets that will not provide the desired minimum return.

Regarding independent claim 4, applicant contends that there is no disclosure in Bernhardt concerning scenarios. Examiner disagrees because Bernhardt discloses that the algorithms will require the following input: An optional prediction for the future mean returns of all the assets. Bernhardt further discloses "if this is not available then the algorithm automatically uses historical mean returns for the assets". Please note that using historical returns for the assets would correspond to a different scenario. Bernhardt further discloses optimizing the set of assets ([0034]).

As for claims 5, 11-12 and 28 Applicant contends that Columbus does not disclose real option values. Examiner disagrees because Columbus teaches a step of "calculate present value of future cash flow", Fig. 3 step 33 which corresponds to real option values.

As for claim 31, Bergmann discloses the tax sensitivity for an asset (Abstract; [0002]).

NEW CITATIONS

US 2002/0143682 A1 (Bergmann et al) 03 October 2002, see Abstract; [0002].

2) optimizing the weights of the assets in the selected set.

11. (unchanged) The method set forth in claim 10 wherein:

the probability that at least one of the assets will not provide the desired minimum return is determined using the real option values for the assets.

12. (unchanged) The method set forth in claim 10 wherein:

optimizing the weights of the assets is done using the real option values for the assets.

13. (unchanged) The method set forth in claim 10 wherein:

optimizing the weights of the assets is done using robust optimization.

14. (unchanged) The method set forth in claim 13 wherein:

the robust optimization optimizes over a set of user-specified scenarios, each scenario having values which are used in optimizing the set of assets and which vary stochastically between two extremes and a probability of occurrence for the scenario.

15. (unchanged) The method set forth in claim 10 wherein:

optimizing the weights of the assets is done subject to a constraint that the probability that the set of assets yields a desired minimum return is greater than a user-specified value α .

16. (unchanged) The method set forth in claim 15 wherein:

the optimization is done subject to a plurality of constraints $(1..n)$, a constraint c_i specifying that the probability that the set of assets yields a desired minimum return that is greater than a user-specified value α_i .

17. (amended) The method set forth in claim #C5-15 wherein:

optimizing the weights of the assets in the set is done using robust optimization.

18. (unchanged) The method set forth in claim 17 wherein:

1 27. (unchanged) The method set forth in claim 12 wherein:
2 the method further includes the step of:
3 receiving an input indicating one of a plurality of objective functions for computing the
4 real option values for the assets; and
5 in the step of optimizing the weights of the assets, the optimization is done using the
6 indicated objective function of the plurality.

1 28. (amended) The method set forth in claim 12 wherein:
2 in the step of optimizing the weights of the assets, the objective function is adjusted by
3 assigning a premium or a discount to the real option value of one or more of the assets.

1 29. (amended) The method set forth in claim 28 wherein:
2 the objective function is adjusted to take non-normal returns for the asset into the
3 account.

1 30. (unchanged) The method set forth in claim 28 wherein:
2 the objective function is adjusted to take liquidity characteristics of the asset into account.

1 31. (unchanged) The method set forth in claim 28 wherein:
2 the objective function is adjusted to take tax sensitivity of an asset into account.

1 32. (unchanged) The method set forth in claim 28 wherein:
2 the objective function is adjusted to take the length of time an asset has been available
3 into account.

1 33. (unchanged) The method set forth in claim 12 wherein:
2 the method further includes the step of:
3 receiving an input indicating one of a plurality of modes of quantifying the risk of an
4 asset; and
5 in the step of optimizing the weights of the assets, the optimization is done using the
6 indicated mode of the plurality.